CHEMEX LABS LTD.

ANALYTICAL CHEMISTS
GEOCHEMISTS
REGISTERED ASSAYERS

March 13, 1985

CONTRACT SERIAL NO. OSR84-00204
REQUISITION NO. 4-1700
TITLE: "VERIFICATION OF ANALYTICAL REFERENCE MATERIALS"
CONTRACTOR: CHEMEX LABS LTD.

2 pp

National Uranium Tailings Pro
CANMET, Dept. of Energy, Mines
555 Booth St.,
Ottawa, Ontario
K1A 0G1

Attn: R. John

Dear Mr. John:

We have completed the analyses of the Ra-226 solutions provided to us, as well as the analysis of the Ba(Ra)SO4 precipitate. The results of the solution analyses are as follows:

Solution	Ra-226 (pCi/l)
1	36 +/- 3
2	115 +/- 7
3	347 +/- 12

The Ba(Ra)SO4 precipitate was found to contain 0.9 +/- 0.4 pCi activity of Ra-226. A number of different subsamples (n=5) were counted as the precipitate was not totally homogeneous.

The procedure used for the analysis of solution samples is as follows: Aliquots of each solution (50-200 mls) were taken and Ba-133 tracer was added after acidification with nitric acid. Radium was precipitated from solution by coprecipitation with lead sulfate, redissolved and purified by coprecipitation with barium sulfate. The precipitate was collected, gamma counted for Ba-133 to measure the overall yield (90-100%) and then stored for a minimum of one week to allow for the ingrowth of daughters. At the end of this period, samples were counted for 100 minutes using gross alpha counting techniques and compared to the activity of standard Ra-226 solutions carried through the same procedure. The standard Ra-226 solutions

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were diluted from stock obtained from Amersham Radiochemicals. This solution had been previously calibrated against a U.S. National Bureau of Standards Ra-226 source and has a total uncertainty of not greater than +/- 3.9% in its activity. The uncertainties reported for the current data are at the 95% confidence level.

I trust this information will be sufficient for your purposes. If you require any additional information please do not hesitate to contact me.

Yours sincerely,

Michael LeGeyt

Michael LeGeyt, Ph.D.
Project Supervisor

MLG/gr